some of the greatest industrial movements of the time, and all indications are that that will continue to be so more and more. It is sometimes said that the only source of wealth is labour. This was true in old days, when science was little applied to industry, and there were capitalists and labourers and little else, but conditions have since then been changed. There is an abundance of labour, but also a greater abundance of capital. It is becoming apparent that labour undirected, labour without knowledge and without scientific ability to direct it, is incapable of serving the purpose of those who wish to develop the resources of nature. The real source of wealth is the direction of labour and capital to the right points of application. Knowledge is the source of wealth—scientific knowledge, business knowledge—the capacity of the trained man; and the men with that capacity, the men of brain and of science, are emerging more and more as those who have the power of controlling the resources of the earth, and labour and capital are becoming more and more instruments in their hands.

Gifts and legacies to the funds of Yale University amounted to more than 100,000*l.* during the fiscal year recently completed. Gifts amounting to 70,000*l.* were received by the New York University during the past fiscal year. The value of this University's property is more than 1,000,000*l.*

Prof. Bedson last June completed his twenty-fifth year as professor of chemistry at the Armstrong College, Newcastle-upon-Tyne. The event was the occasion of many congratulations and suitable presentations. In addition to the celebration arranged last summer, we notice from the report of the principal of the college that the council has "deemed it only fitting to mark the occasion, and its profound appreciation of Prof. Bedson's exceptional services to the college, by unanimously voting him a 'jubilee' vacation of six months, to take effect in the course of the coming year, together with a sum of 200*l.*" We congratulate Prof. Bedson, and commend the course of action adopted by the Newcastle authorities to the notice of other college councils.

The fifth annual report of the Manchester Education Committee deals with the year 1906–7, and provides much information concerning the successful attempts made in the city to coordinate educational effort and to prevent overlapping and waste. Full particulars are given as to the work during the session of the Municipal School of Technology. There was for some reason a decrease of 164 in the total number of individual day and evening students enrolled, which, however, reached 5149. The total volume of work of the evening departments, computed in student hours, that is, by multiplying the number of students enrolled by the total number of hours of instruction, was 444,827 student hours, whilst the actual volume of work namely, the total number of hours of instruction multiplied by the actual attendances, was 290,046, or 65 per cent. of the total volume of work.

The inaugural address delivered by Prof. Willis G. Tucker at the opening of the present session of the Albany Medical College has been reprinted from the Albany Medical Annals of the present month. The address dealt with educational democracy, and in it Prof. Tucker indicated several directions in which, unless care is taken, danger may result to American higher education from the large private benefactions of recent years. Quoting from a speech of Chancellor MacCracken at New York University, Prof. Tucker urged that, as a result of the gifts of millions of dollars from great American financiers, the universities are in danger of being reckoned the purchased servants of a narrow caste. He went on to insist that in a country like the United States "higher education should be in no way dependent upon the variable and perhaps ill-directed impulses of individuals, however generous and philanthropic they may be." He maintained that it is the duty of the State to provide technical and higher education for the people, enumerated the reasons for his belief, and indicated some of the directions in which he thought the necessary funds might be raised.

The report of the council of University College, Bristol, presented to the governors at their annual meeting on November 20, is a record of steady progress as regards number of students and results of original investigations. For a college with limited means and indifferent local support, the amount of research carried on is particularly noteworthy. A department in economic biology has been formed with the object of rendering assistance to those engaged in agriculture and kindred pursuits. By carrying out investigations and experiments, and by suggesting preventive or remedial measures where crops and fruit trees have been threatened or attacked by insect or other pests, it is hoped that the department will meet a real need. The committee of the Bristol Museum has consented to form collections illustrative of economic biology. Though the college is a centre of intellectual life and interest in the city of Bristol and neighbourhood, it derives only a meagre income of about 500*l.* a year from the sustentation fund. If this may be taken as an index of public support to higher education in the west of England, the prospects of a university do not seem very promising. It is hoped, however, that the King will visit the city to open the Avonmouth Docks next year, and that the promoters of the scheme for a university will be justified by that time in asking for a charter.

The report for the session 1906–7 of the department of technology of the City and Guilds of London Institute has now been published. During the session, 3311 classes in technological subjects were registered at 376 centres, in 286 towns. These classes were attended by 46,048 students, being 1580 more than in 1905–6; 21,728 candidates were presented in technology from 439 centres in the United Kingdom, and of these 13,054 passed. By including the candidates from India and the colonies, and those for teachers' certificates in manual training and domestic economy, the total number of examinees was 23,572. These figures show an increase on those of any previous year. Members of the institute's staff for the examination, inspection, or organisation of classes visited ninety-two centres during the year. The report points out two main causes which impede progress in the technical instruction of artisans and prevent the results of the teaching from being as satisfactory as might be desired. They are, first, the difficulty of finding competent teachers, and, secondly, the unduly large proportion of artisan students who enter technical classes without the preliminary knowledge necessary to take full advantage of the instruction they receive. It is fully recognised in the report that the teaching of technology has improved greatly during the past decade, but it is noted that the examiners have still to direct attention repeatedly to the insufficient knowledge that candidates possess of the principles of the subjects, and to point out that the fluctuating quality of answers in different groups of papers indicates faulty teaching as the source. As regards the preliminary training of the students, it is desirable, the report says, that more encouragement should be given to the further attendance of pupils at a school in which provision is made for manual training, English, and practical science teaching, before commencing the distinctly technical part of their course of training.

SOCIETIES AND ACADEMIES.

London.

Chemical Society, November 7.—Sir William Ramsay, K.C.B., F.R.S., president, in the chair.—Gaseous nitrogen trioxide: H. B. **Baker** and Mrs. **Baker.** Liquid nitrogen trioxide can be converted into the gaseous state if it is dried completely. The liquid is green at the ordinary temperature, but becomes blue below −2°. In liquid-air it solidifies to a mass of dark blue crystals.—The atomic weight of tellurium: H. B. **Baker** and A. H. **Bennett.** During the last thirteen years the authors have investigated tellurium, and the possibility of its containing a second element, but so far all the evidence obtained points to the homogeneity of the element.—The isomerism of the double sulphites of sodium and potassium: M. H. **Godby.** No evidence of the existence of the two isomeric salts $KO.SO_2Na$ and $NaO.SO_2K$ could be obtained.—Studies in the camphane series, part xxiv., camphoryldithiocarbamic acid and camphorylthiocarbimide: M. O. **Forster** and T. **Jackson.** Descriptions of both these compounds are given.—The vapour pressures of triethylamine, of 2:4:6-trimethylpyridine, and of their mixtures with water: R. T. **Lattey.** The total pressure curves obtained experimentally for these mixtures conform to the type expected theoretically. The partial pressure curves can be calculated by a form of the Duhem-Margules equation.—Liquid triethylamine: R. T. **Lattey.** Evidence is brought forward to show that the amine is a unimolecular liquid.—Note on the constitution of homoeriodictyol: F. B. **Power** and F. **Tutin.** It is shown that in so far as the observations of Mossler (*Sitz. K. Acad. Wiss. Wien*, June) with regard to this compound are accurate, they can be explained by the formula previously suggested by the authors (Trans. Chem. Soc., xci., 889).—The alkyl compounds of gold. Diethylauric bromide, preliminary note: W. J. **Pope** and C. S. **Gibson.** This colourless crystalline substance, the first alkyl compound of gold described, is obtained by the action of auric bromide on magnesium ethyl bromide in ether.—The interaction of methylene chloride and the sodium derivative of ethyl malonate. A correction: F. **Tutin.** The yellow sodium salt previously described (*ibid.*, xci., 1141) is the sodium derivative of ethyl dicarboxyglutaconate, formed by the action of chloroform present as an impurity in the methylene chloride.—Preparation of aliphatic nitro-compounds: P. C. **Rây** and P. **Neogi.** The nature and quantities of the nitrites and nitro-compounds obtained by interaction of various alkyl iodides with mercurous nitrite are given.—Some mercury derivatives of camphor: J. E. **Marsh** and R. de J. F. **Struthers.** A description of the compounds obtained by heating camphor with alkaline mercuric iodide.—Contributions to the chemistry of the terpenes, part ii.: G. G. **Henderson.** The addition product of chromyl chloride and limonene is described, as well as the decomposition products obtained from this.—The synthesis of acridines and phenonaphthacridines, tetra- and hexa-methylacridines, dimethylphenonaphthacridines, dixylylmethylenediamines: A. **Senior** and A. **Compton.**—The root and leaves of *Morinda longiflora*: M. **Barrowcliff** and F. **Tutin.** These materials are reputed in Sierra Leone to possess valuable medicinal properties, but the products obtained from them, viz. (*a*) hydroxymethoxymethylanthraquinone, (*b*) morindanol, $C_{38}H_{61}O_3$.OH, m.p. 278, (*c*) a phytosterol, (*d*) hentriacontane, (*e*) a mixture of lower fatty acids and citric acid, and (*f*) resins and other amorphous products, possess no pronounced physiological activity. A small amount of the alizarin monomethyl ether, which occurs in "Chay" root, was also obtained.—Ethyl α-cyano-γ-phenylacetoacetate: A. R. **Smith** and J. F. **Thorpe.**—Aromatic amides and imides of camphoric acid: W. O. **Wootton.**—The melting point of *d*-phenylglucosazone: F. **Tutin.** The phenylosazones of sugars occurring naturally in a number of plants have been prepared, and found to melt at temperatures varying from 205° to 219°. On re-crystallisation from pyridine they melted at 215° to 218°, which is the melting point of *d*-phenylglucosazone, similarly re-crystallised from pyridine.—The interaction of cyanodihydrocarvone, amyl nitrite, and sodium ethoxide: A. **Lapworth** and E. **Wechsler.**

Royal Anthropological Institute, November 5.—Prof. D. J. Cunningham, F.R.S., president, in the chair.—A new method of ascertaining the stature and making other measurements of the living person: Prof. D. J. **Cunningham.** The apparatus consists of a large bed of slate placed against a wall and divided into centimetre squares. The subject is placed against the slate, and by the aid of a carpenter's square the height and other measurements can be read off.—A series of so-called "grave stones" and other objects of a similar nature from the west of New South Wales: N. W. **Thomas.** The objects, most of which are apparently manufactured of a mixture of gypsum and sand, are in many cases marked with parallel grooves and signs resembling broad arrows. Some of them are long, banana-shaped objects with a cup-shaped hollow in the base. These are said to be found in sand-hills associated with implements and other remains of old camps. As to the meaning of these there is absolutely no information. Others, which are shorter, thicker, and sometimes helmet-shaped, are certainly placed upon graves, but the precise object is uncertain.

Royal Astronomical Society, November 8.—Mr. Newall, president, in the chair.—Pogson's Observations of Variable Stars, edited by C. L. Brook and H. H. Turner: Prof. **Turner.**—Note on the ancient solar eclipses discussed by Mr. Cowell: A. C. D. **Crommelin.** The author had made an independent calculation of the six most important ancient eclipses, and obtained results practically identical with those of Mr. Cowell. Further reasons were given for supposing that the eclipse of −1062 was witnessed from Babylon itself, and a brief statement was given of the point at issue between Mr. Cowell and Prof. Newcomb and Mr. Nevill.—Disappearance of Saturn's ring system, October 3: R. T. A. **Innes.** The ring was easily seen with the 9-inch refractor of the Johannesburg Observatory at 4.45, in twilight, but became invisible by 10.30 the same evening, so the earth must have passed through the plane of the ring soon after invisibility.—The ultra-violet region in sun-spot spectra, and spectrum of comet *d*1907: J. **Evershed.** The papers were read by Dr. Michie Smith, who showed a series of sun-spot spectra taken at Kodaikánal Observatory, and also a photograph of the comet spectrum showing several lines extending into the tail, and a pair of very bright lines confined to the nucleus, which were identified with the lines of cyanogen.—Photograph of comet *d*1907 taken at the Royal Observatory, Greenwich: A. S. **Eddington.** The tail of the comet appeared to consist of a number of fine straight rays spreading from the nucleus.—Note on the permanency of some photovisual lenses: Dr. W. J. S. **Lockyer.** Six of these lenses, of apertures of 3 inches to 12 inches, have been in use at the Solar Physics Observatory, and in periods of from twenty-three to eighty-three months they have all developed curious markings on one or more of their inner surfaces. The markings appeared on the inner surfaces of one or both of the outside lenses, and not on the inner lens, as had been expected. A series of photographs was shown, the markings being crystalline formations, sometimes covering the entire lens. It was concluded that the formation was due to the absorption of water vapour by the glass, setting free its alkaline components to form carbonates, which are deposited as crystals. Further particulars were given in a note by Mr. Dennis Taylor, appended to Dr. Lockyer's paper.—Spectroscopic observations of cyanogen in the solar atmosphere and in interplanetary space: H. F. **Newall.** The author had found by the method of Cornu that cyanogen was present in the solar atmosphere, but it also appeared to exist in space, and the suggestion was made that the presence of cyanogen in comets, as shown by their spectra, might be due to the latter circumstance rather than to its existence in comets themselves.—A series of spectroheliograph photographs of solar faculæ and prominences taken at the Kodaikánal Observatory, India: Dr. Michie **Smith.**

Mathematical Society, November 14.—Prof. W. Burnside, president, in the chair.—Hyper-complex numbers: J. H. Maclagan **Wedderburn.** The object of the paper is to develop a treatment of hyper-complex number-systems by aid of the calculus introduced by Frobenius, and applied by him to the theory of groups.—The invariants of a binary quintic and the reality of its roots: Dr. H. F. **Baker.** It is usual to express the invariants of a quintic in terms of a set of four, which are connected by a syzygy. In the paper three rational functions of the four are introduced, each of them an invariant, and two of them absolute invariants, in terms of which each of the four, and any other invariant, can be expressed rationally, and the explicit expressions of the four original invariants in terms of the three new invariants are given. When the two new absolute invariants, denoted by X, Y, are regarded as coordinates of a point in a plane, the conditions that the quintic, with real coefficients, may have one, three, or five real roots are determined by the division of the plane into four regions by means of a certain quartic curve, corresponding to the vanishing of the discriminant, and an arc of a certain cubic curve which touches this quartic. The number of real roots is determined without any ambiguity by the situation of (X, Y), whether it is in one of these regions or on a bounding line.—The application of quaternions to the problem of the infinitesimal deformation of a surface: J. E. **Campbell.** Weingarten's characteristic function in this problem can be interpreted kinematically as the normal component of the rotation, which an element of surface undergoes in the course of the deformation. The direct application of the method of moving axes, to obtain the characteristic equation, can be simplified very much by the use of quaternions.—Addendum to a paper on the inversion of a repeated infinite integral: T. J. I'A. **Bromwich.**—Generalisation of a theorem in the theory of divergent series: G. H. **Hardy.**—Uniform and non-uniform convergence and divergence of a series, and the distinction between right and left: Dr. W. H. **Young.**—Nodal cubics through eight given points: J. E. **Wright.**—A transformation of hypergeometric series: Dr. E. W. **Barnes.**—A transformation of a certain hypergeometric series: Prof. M. J. M. **Hill.**—A general theorem on integral functions of order less than one-half: J. E. **Littlewood.**

Paris.

Academy of Sciences, November 11.—M. A. Chauveau in the chair.—A new mineral species, arising from the Athenian plumbiferous scoria of Laurium: A. **Lacroix** and A. **de Schulten.** This is one of a series of minerals arising from the action of sea water upon scoria rich in metallic lead and galena. Its composition corresponds to the formula $Pb_3(AsO_4)_2,3PbCl_2$. The crystallographic measurements are given, and the hardness (3·5) and density (7·1) measured. The name georgiadesite is proposed for the mineral.—The influence of feeding on the course of experimental tuberculosis: MM. **Lannelongue, Achard,** and **Gaillard.** In sixty strictly comparative experiments, in three classes of diet in which fat, carbohydrate, and nitrogenous food respectively predominated, the animals with the fatty food died in forty days; with sugar, eighty-seven days; and with gluten, 371 days. This confirms the result of the authors' early work, clearly demonstrating the superiority of a strongly nitrogenous diet in fighting tuberculosis.—Continued algebraic fractions: Edmond **Maillet.**—The periodic solutions of the equation

$$\Delta u + \lambda \alpha(x, y, z)u = 0:$$

A. **Myller.**—The method of colour photography of MM. A. and L. Lumière: Adrien **Guébhard.** A discussion of the phenomena attending the reversal of the image in this process.—The measurement of the anomalous dispersion in crystals at different temperatures, and on some theoretical consequences: Jean **Becquerel.** It is shown that the large increase of intensity observed for the majority of the absorption bands of tysonite when the crystal is plunged into liquid air is not entirely due to the contraction of the bands, but is also caused by an increase in the total energy absorbed, corresponding to the increase in the dielectric coefficient of the electrons.—A comparison of the effects of the X-rays and radium upon the plant cell. Value of the unit M in plant physiology: H. **Guilleminot.**—The action of radium bromide on precious stone of the alumina family: F. **Bordas.** A modification of the method described in a previous paper. Colourless corundum has been transformed into topaz, the depth of colour of natural topazes increased, and a similar effect produced with faintly coloured rubies. Colourless fused alumina, submitted to the action of radium bromide, became first rose-coloured and then reddish yellow. Since this action takes place equally well at −200°, the conclusion is drawn that the phenomenon of coloration is not due to oxidation.—The diastatic function of colloids: J. **Duclaux.** From a quantitative study of the catalysis of hydrogen peroxide solutions by colloidal solutions of ferric hydrate, the author concludes that the hydrolysed part of the salt does not intervene in the catalysis, and that it is the undecomposed ferric chloride which effects the change.—The action of gold on the dioxide of sodium and barium: Fernand **Meyer.** Precipitated gold reacts with fused sodium dioxide, yielding sodium aurate, and barium dioxide attacks gold similarly, although the reaction is less complete. From these substances auric acid can be prepared by the action of sulphuric acid. Auric acid, dried in a vacuum in the dark, has the composition $Au_2O_3,3H_2O$ or $Au(OH)_3$. The preparation of the pure aurates of sodium, potassium, barium, strontium, and calcium from this acid is described. These aurates are decomposed by heat or light, the insoluble residue being Au_2O, and not gold as supposed by Fremy.—The preparation of some iodides *in vacuo*: Marcel **Guichard.** The preparation of the anhydrous iodides of iron, nickel, silicon, and aluminium is described.—The action of amorphous arsenic on the alkyl halides: V. **Auger.** Amorphous arsenic, prepared by the reduction of a hydrochloric acid solution of arsenious anhydride with stannous chloride or a hypophosphite, is very active. It reacts with methyl iodide at the ordinary temperature, and at higher temperatures in sealed tubes with CCl_4, $CHCl_3$, $C_2H_4Br_2$, $C_2H_4I_2$, CHI_3, and various alkyl iodides.—The iodohydrins and alkyliodohydrins derived from styrolene: Marc **Tiffeneau.**—The action of urea, thiourea, urethane, and some amides on xanthydrol: R. **Fosse.**—The application of the Hoffmann reaction to sparteine: Charles **Moureu** and Amand **Valeur.**—The estimation of fat in skimmed milk: R. **Lezé.** Three litres of the milk are mixed with ammonia and caustic soda, and the whole passed through a centrifugal separator.—The coloration of certain precious stones under radio-active influences: Daniel **Berthelot.**—The products of the volcano Monte Ferru, Sardinia: M. **Deprat.**—The influence of high altitude on the loss of water by the organism: H. **Guillemard** and Aug. **Moog.** The effect of high altitude is not to increase the rate of loss of moisture from the body, but, on the contrary, to reduce it. The experiments leading to this conclusion were conducted at Paris, Chamonix (1050 metres), Grands-Mulets (3050 metres), and the summit of Mt. Blanc (4810 metres).—The development of the energy of the voice: M. **Marage.** A description, with diagrams, of a set of exercises to increase the volume of air expelled from the lungs.—The visibility of night signals at sea: André **Broca** and M. **Polack.** The practical conclusions drawn from this investigation are as follows. If a signal of doubtful colour is better seen by direct vision than by indirect vision, it is red. In the contrary case the light is blue or colourless.—A new method of determining the accelerating power of neutral potassium and sodium salts on the coagulation of milk by vegetable ferments: C. **Gerber.**—The mitosis of cells containing *Bacillus cuenoti*: L. **Mercier.**—The experimental study of medicines stimulating the movement of the stomach by the aid of fluoroscopy: G. **Carrière.**—A new Myxomycetum, an endoparasite of insects: Louis **Léger.**

November 18.—M. Henri Becquerel in the chair.—The transit of Mercury across the sun of November 13 and 14, 1907. Observations made at the Observatory of Nice: M. **Bassot.**—Observations of the Daniel comet, 1907*d*, and a general plan of organisation for the complete physical study of comets: H. **Deslandres.**—The transit of Mercury of November 14, 1907, at the Observatory of Lyons: Ch. **André.**—Observations made at the Observatory of Toulouse of the transit of Mercury of November 13–14: B. **Baillaud.**—Similar observations made at the Observatory of Marseilles: E. **Stephan.**—Similar observations from the Observatory of Bordeaux: L. **Picart** and E. **Esclangon.**—Similar observations from the Observatory of Bourges: Th. **Moreux.**—The occultation of the satellites of Jupiter: G. **Le Cadet.**—The observation of the transit of Mercury across the sun, November 13–14, 1907; A. de la Baume **Pluvinel.**—Remarks on the relation between the solar activity and magnetic perturbations: MM. **Cirera** and **Balcells.**—The transit of Mercury, November 13–14, at the Observatory of Besancon: MM. **Bruck, Chofardet,** and **Pernet.**—The correction of the astigmatism of doubly refracting prisms: C. **Tissot** and Félix **Pellin.** The astigmatism can be corrected by the use of an appropriate cylindrical lens.—The propagation of telephone currents on subterranean lines: Henri **Abraham** and M. **Devaux-Charbonnel.**—The magnetic double refraction of organic liquids: A. **Cotton,** H. **Mouton,** and P. **Weiss.**—The multiplicity of sounds emitted by tuning forks: G. **Sizes** and G. **Massol.**—The action of the Röntgen rays upon crystallised alumina: F. **Bordas.** The author has described in previous papers the alteration of colour produced in various forms of crystallised alumina by the action of the rays from radium bromide. From the fact that the radium salt acts from the inside of a glass tube, the α rays are excluded from the action. Since similar colouring effects are now shown to be produced by the Röntgen rays, it is probable that the effects observed are due to the γ rays.—The presence of *p*-methoxycinnamic aldehyde in essence of estragon, and on some derivatives of estragol: Maurice **Daufreme.** The aldehyde was isolated from the essence by repeated fractional distillation under reduced pressure, and by its reactions and analysis identified with *p*-methoxycinnamic aldehyde. Since, however, the constants did not agree with those of the same aldehyde, as described by Scholtz and Wiedemann, a synthetical sample was prepared, and found to be identical with that from the essence.—The artificial reproduction of heavy spar, celestine, and anglesite, and on isomorphous mixtures of these substances: Paul **Gaubert.** The method used is the re-crystallisation of the precipitated sulphate from sulphuric acid at, or slightly below, its boiling point.—The influence of the concentration of sugar solutions on the development of the spikes of *Ulex europaeus*: Marin **Molliard.**—Floral anomalies due to mechanical action: M. **Ducamp.**—The use of heat for the treatment of coffee plants against the attacks of the Indian borer (*Xylotrechus quadrupes*): Louis **Boutan.** To have any practical results it is necessary that all parts of the plant affected should be raised to a temperature of 50° C. This cannot be done by the direct action of a burner, and the author has designed a special stove for this purpose.—The possibility of establishing the diagnosis of death by radiography: Charles **Vaillant.** In a radiograph of a living person the stomach and intestines are not visible. Owing to their stationary condition after death, and possibly owing also to the development of gases which reinforce the action of the rays these organs are clearly shown immediately after death in the radiograph, and the clearness increases with lapse of time after death.—The study of the epiploïc sero-appendices: R. **Robinson.**—The north Pyrenees and pre-Pyrenees sheets of *charriage* to the east of the Neste: Léon **Bertrand.**—An ancient bed of the Pliocene Loire: E. **Chaput.**—The relation between the radio-activity of subterranean waters and their hydrology: F. **Dienert** and E. **Bouquet.**

DIARY OF SOCIETIES.

THURSDAY, NOVEMBER 28.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Development of Turbo-Generators: Dr. Robert Pohl.

FRIDAY, NOVEMBER 20.

SOCIETY OF ARTS, at 8.—The Hygiene of Work in Compressed Air. (Diving, Caisson Work, Sub-aqueous Tunnelling, &c.): Dr. J. S. Haldane, F.R.S.

SATURDAY, NOVEMBER 30.

ESSEX FIELD CLUB (at Essex Museum of Natural History, Stratford), at 6 p.m.—Notes on an Ancient Human Skeleton found at Foxearth, Essex: J. M. Wood.—A History of the Mineral Waters and Mineral Springs of Essex: Miller Christy and (Miss) May May Thresh.

MONDAY, DECEMBER 2.

SOCIETY OF ARTS, at 8.—The Theory of the Microscope: Conrad Beck.

ARISTOTELIAN SOCIETY, at 8.—Purpose: Prof. Robert Latta.

SOCIETY OF CHEMICAL INDUSTRY, at 8.—The Estimation of Naphthalene in Coal Gas and Spent Oxide of Iron: C. J. Dickenson-Gair.—Note on the Influence of Formal on the Properties of *Funtumia elastica*: Dr. P. Schidrowitz and F. Kaye.—The Polarimetric Determination of Sucrose: Dr. F. Watts and H. A. Tempany.—Niam Fat: Dr. J. Lewkowitscb.

TUESDAY, DECEMBER 3.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Experiments on Wind Pressure: Dr. T. E. Stanton.

WEDNESDAY, DECEMBER 4.

GEOLOGICAL SOCIETY, at 8.—The Faunal Succession in the Carboniferous Limestone (Upper Avonian) of the Midland Area (North Derbyshire and North Staffordshire): T. F. Sibly.—Brachiopod Homœomorphy: *Spirifer glaber*: S. S. Buckman.

ENTOMOLOGICAL SOCIETY, at 8.—Notes and Descriptions of Pterophoridæ and Orneodidæ: E. Meyrick, F.R.S.

SOCIETY OF PUBLIC ANALYSTS, at 8.—The Volumetric Determination of Reducing Sugars: Part i.; The Determination of Invert Sugar in Presence of Varying Amounts of Cane Sugar: A. R. Ling and T. Rendle.—The Quantitative Separation of Barium from Strontium: Miss Zelda Kahan.—(1) The Action of Dimethyl Sulphate (Valenta's Reagent) upon Oils of the Aromatic and Aliphatic Series; (2) Titration with Permanganate in Presence of Hydrochloric Acid: T. W. Harrison and Dr. F. M. Perkin.—Routine Methods for the Bacteriological Examination of Water: A. R. Tankard.

THURSDAY, DECEMBER 5.

ROYAL SOCIETY, at 4.30.—*Probable Papers*: Reciprocal Innervation of Antagonistic Muscles. Eleventh Note, Further Observations on Excessive Induction: Prof. C. S. Sherrington, F.R.S.—On the Distribution of the Different Arteries supplying the Human Brain: Dr. C. E. Beevor.—Localisation of Function in the Lemur's Brain: Dr. F. W. Mott, F.R.S., and Prof. W. D. Halliburton, F.R.S.—On the Supposed Extracellular Photosynthesis of Carbon Dioxide with Chlorophyll: Prof. A. J. Ewart.—The Influence of Increased Barometric Pressure on Man, No. 4, The Relation of Age and Body Weight to Decompression Effects: L. Hill, F.R.S., and M. G. Greenwood, jun.—On the Present Distribution and Origin of the Calcareous Concretions in Coal Seams known as "Coal Balls": Miss Stopes and D. M. S. Watson.—On the Structure of *Sigillaria scutellata*, Brongn., and other Eusigillarian Stems in Comparison with Those of other Palæozoic Lycopods: E. A. Newell Arber and H. H. Thomas.

CHEMICAL SOCIETY, at 8.30.—The Affinity Constants of Bases as Determined by Methyl Orange. Preliminary Communication: V. H. Veley.—The Velocity of Reduction of the Oxides of Lead, Cadmium, and Bismuth by Carbon Monoxide, and the Existence of the Suboxides of these Metals: F. J. Brislee.—The Relation between Unsaturation and Optical Activity, Part i., The Menthyl and Bornyl Esters of β-Phenylpropionic, Cinnamic, and Phenylpropiolic Acids: T. P. Hilditch.—The Constituents of the Essential Oil of Nutmeg: F. B. Power and A. H. Salway.—Methyl Ethers of some Hydroxy-anthraquinones: A. G. Perkin.—The Colouring Matters of the Stilbene Group, Part iv., The Action of Caustic Alkalies upon Paranitrotoluene and its Derivatives: A. G. Green, A. H. Davies, and R. S. Horsfall.—The Replacement of Alkyl Radicals by Methyl in Substituted Ammonium Compounds: H. O. Jones and J. R. Hill.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Automatic Cab-signalling on Locomotives: J. Pigg.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY, at 8.—Retaining Walls: A. T. Walmisley.

LINNEAN SOCIETY, at 8.—Report on Alcyonaria of the Sudanese Red Sea: Prof. J. Arthur Thomson.—Report on the Crinoidea of the Sudanese Red Sea: H. C. Chadwick.—Notes on some Marine Algæ from the Red Sea: Prof. R. J. Harvey Gibson.—*Exhibitions*:—Specimens of *Spartina Townsendi*, as illustrating its Distribution in Britain: Dr. Otto Stapf.—Lantern Slides showing Stages of Soil-denudation consequent on the Removal of Forests: A. P. Young.

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